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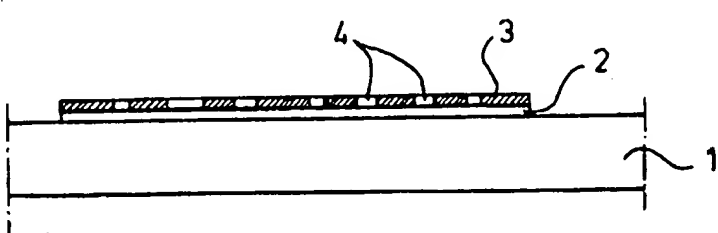
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(51) International Patent Classification ⁶ : B42D 15/10	A1	(11) International Publication Number: WO 97/21552 (43) International Publication Date: 19 June 1997 (19.06.97)
(21) International Application Number: PCT/NL96/00480 (22) International Filing Date: 9 December 1996 (09.12.96) (30) Priority Data: 1001876 12 December 1995 (12.12.95) NL (71) Applicant (for all designated States except US): ING GROEP N.V. [NL/NL]; Strawinskyalaan 2631, P.O. Box 810, NL-1000 AV Amsterdam (NL). (72) Inventor; and (75) Inventor/Applicant (for US only): BRONGERS, Jan, Douwe [NL/NL]; Lupinesingel 550, NL-2403 EB Alphen Aan Den Rijn (NL). (74) Agent: DE BRUIJN, Leendert, C.; Nederlandsch Octrooibureau, Scheveningseweg 82, P.O. Box 29720, NL-2502 LS The Hague (NL).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>
(54) Title: METHOD FOR APPLYING A SECURITY CODE TO AN ARTICLE, SUCH AS A CHEQUE GUARANTEE CARD, CREDIT CARD, IDENTITY CARD OR COMPONENT OF A MOTOR OR MACHINE  <p>The diagram shows a cross-sectional view of a substrate (1) with a top layer (2). Within layer 2, there are cut-out symbols (4) and a security code (3) is applied to the surface of layer 2.</p>		
(57) Abstract For applying a security code to an article (1), such as a cheque guarantee card, credit card, identity card or component of a motor or machine, use is made of a hologram or kinegram (2) wherein personification or identification symbols, letters, numerals or figures are or will be cut out by burning-in using a laser beam, said hologram or kinegram being affixed to an underlying hologram or kinegram which is affixed to the article directly or via one or more holograms or kinegrams, the various features being such that the optical effect of an underlying hologram or kinegram is visible through the cut-out symbols (4).		

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Title: Method for applying a security code to an article, such as a cheque guarantee card, credit card, identity card or component of a motor or machine.

5 The invention relates to a method for applying a security code to an article, such as a cheque guarantee card, credit card, identity card or component of a motor or machine, wherein a diffraction-generating microstructure, such as a hologram or kinegram, is applied to said article, in which microstructure
10 personification or identification symbols, such as letters, numerals or figures, are or will be cut out by means of burning-in using a laser beam.

A method of this type is used in the production of the so-called Europass. For this pass the microstructure consists of
15 a hologram and the cut-out symbols consist of four numerals, which extend through the entire depth of the hologram. As a result of the cut-out symbols, all that is seen at these locations is the substrate, that is to say the plastic card,
20 which has been burned black. The possibility of the cut-out symbols being rendered invisible by filling up and of new, different personification or identification symbols being cut out is not excluded. Counterfeiting is thus possible.

25 The aim of the invention is, if not to preclude counterfeiting, certainly to make this appreciably more difficult.

According to the invention, the method mentioned in the preamble is, to this end, characterised in that the said
30 microstructure is affixed to another underlying microstructure which is affixed to the article directly or via one or more microstructures, the various features being such that the optical effect of an underlying microstructure is visible through the cut-out symbols formed.

35

The essential feature for the result is that, in addition to the upper hologram, kinegram or optionally another "optical variable device", an optical effect of an underlying hologram

or kinegram is also visible via the cut-out symbols. Of course, the principle of the invention is also applicable in the case of more than two holograms or kinegrams glued on top of one another. With this arrangement, via some cut-out symbols in the top microstructure, the optical effect of the microstructure located beneath it can be seen, whilst via cut-out symbols in the top microstructure and the microstructure located beneath it the optical effect of the underlying microstructure can be seen.

10

The said cut-out symbols can be burned in either after or before affixing the top microstructure. If the cut-out symbols are applied after affixing the relevant microstructure, burning-in must be carried out with the utmost care to prevent damage to the underlying hologram or kinegram.

The invention will now be explained with the aid of the two diagrammatic figures.

20 Figure 1 shows a view of a plastic card with a security code applied thereon according to the invention.

Figure 2 shows a cross-section of the card according to Figure 1 on a larger scale.

25

A first hologram or kinegram 2 has been glued on a plastic card 1, which serves as substrate, and a second hologram or kinegram 3 has been glued on to said first hologram or kinegram. In the upper, second hologram or kinegram 3, cut-out symbols 4 in the form of numerals have been made by means of a laser beam.

30

A person looking at the card sees the top hologram or kinegram 3 and, via the cut-out symbols 4, also sees the optical effect of the underlying hologram or kinegram 2.

35

The difference between a hologram and a kinegram is that a hologram suggests depth and a kinegram suggests movement. Both a hologram and a kinegram are formed by a microstructure with

a reflective coating consisting of a metal alloy.

It is exceptionally difficult, if not virtually impossible, to remove the top hologram or kinegram without damaging the bottom
5 hologram or kinegram, or to fill in the cut-out symbols 4 in the top hologram or kinegram 3 and then to cut out symbols in approximately the same position without the optical effect of the bottom hologram or kinegram being damaged or substantially
10 changed at the location of the cut-out symbols. Counterfeiting is therefore also easy to establish because an incomplete or damaged optical effect of the bottom hologram or kinegram becomes visible via the cut-out symbols in the top hologram or kinegram.

15 The top hologram or kinegram 3 can be glued to the bottom hologram or kinegram 2 before or after making the cut-out symbols 4.

More than two holograms or kinegrams glued to one another are
20 also possible, in which case some cut-out symbols extend only through the top hologram or kinegram and other cut-out symbols extend through several holograms or kinegrams. Only the bottom hologram or kinegram remains unaffected.

25 The invention can be employed not only for cheque guarantee cards and credit cards but also for identity cards, machine components and the like. Within the scope of the invention, all sorts of variants are also conceivable in respect of the card referred to as an illustrative embodiment.

Claims

1. Method for applying a security code to an article, such as a cheque guarantee card, credit card, identity card or component of a motor or machine, wherein a diffraction-generating microstructure, such as a hologram or kinegram, is applied to said article, in which microstructure personification or identification symbols, such as letters, numerals or figures, are or will be cut out by means of burning-in using a laser beam, characterised in that the said microstructure is glued to another underlying microstructure which is affixed to the article directly or via one or more microstructures, the various features being such that the optical effect of the underlying microstructure is visible through the cut-out symbols formed.

2. Method according to Claim 1, characterised in that the said symbols are burned in by means of laser beams after affixing the top microstructure, without the underlying microstructure being damaged.

3. Method according to Claim 1, characterised in that the said symbols are made before the top microstructure is affixed to the underlying microstructure.

4. Method according to one of the preceding claims, characterised in that three or more microstructures are affixed on top of one another and, through some cut-out symbols in the top microstructure, the optical effect of the microstructure located beneath it can be seen, and via cut-out symbols in the top microstructure and the microstructure located beneath it the optical effect of the underlying microstructure can be seen.

5. Article to which a security code has been applied in accordance with the method according to one of the preceding claims.

fig-1

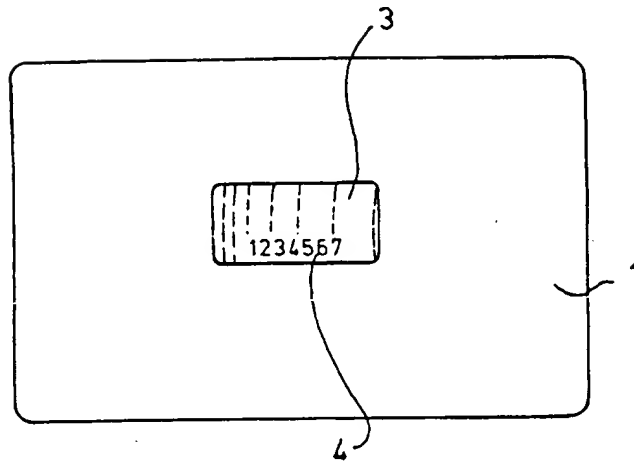
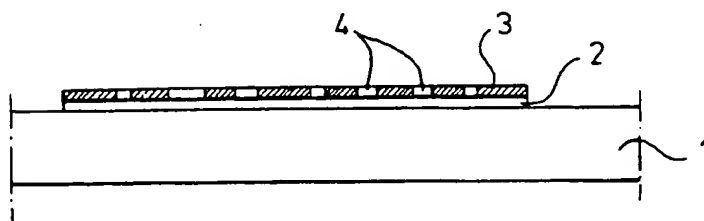


fig-2



PCT/NL 96/00480

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 B42D15/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 B42D G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US,A,5 331 443 (STANISCI) 19 July 1994 see the whole document ---	1
Y	EP,A,0 372 274 (GAO) 13 June 1990 see column 5, line 32 - column 6, line 4; figure 1 ---	1
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5 February 1997

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1 2. 02. 97

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A-5331443	19-07-94	NONE	
EP-A-372274	13-06-90	DE-A- 3840729	13-06-90
		AT-T- 118407	15-03-95
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